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Evaluation of Extension Notes on Landscape Ecology: A Survey of Ministry of Forests Planners

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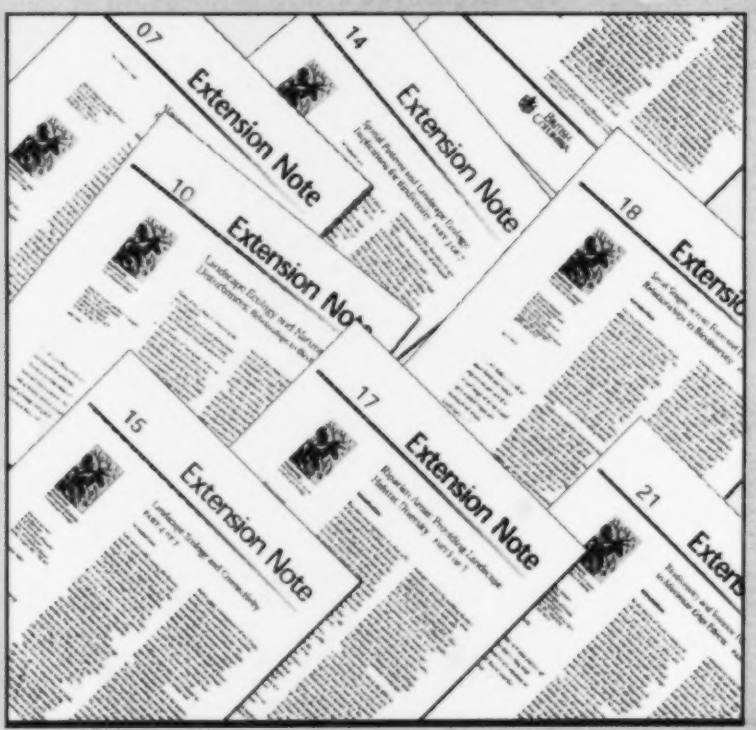

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Ministry of Forests Research Program

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ABSTRACT

This survey evaluates client perspectives regarding a series of seven extension notes on landscape ecology and biodiversity. Results of this evaluation will help us improve future research extension efforts. Although these extension notes were sent to others, due to limited resources, this evaluation sought responses from Ministry of Forests planners only.

The survey reveals audience preferences with respect to extension note content, design, length, and distribution methods. The survey also gathered information about client preferences with respect to extension methods; those surveyed also rated the relative importance of some selected forest management topics. The summary indicates the most common client responses to interview questions. The evaluation concludes with a table of summary recommendations for planning extension notes. Web site addresses for the seven extension notes are listed in the Appendix.

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1 INTRODUCTION

This survey evaluates client perspectives regarding a series of seven extension notes on landscape ecology and biodiversity. Results of this evaluation will help us improve future research extension efforts. Due to limited resources, this evaluation sought responses from Ministry of Forests planners only, although the extension notes were sent to others (e.g., Ministry of Environment, Lands and Parks Forest Ecosystem Specialists and industry resource managers).

Evaluation of the seven extension notes:
- Survey questions focused on distribution, content, and usefulness of extension notes, planner preferences regarding extension methods, and research topics of importance to planners.

The survey reveals audience preferences with respect to extension note content, design, and distribution methods. The survey also gathered information about client preferences with respect to extension methods; those surveyed also rated the relative importance of some selected forest management topics. The summary indicates the most common client responses to interview questions.

The *Biodiversity Guidebook* (B.C. Ministry of Forests and B.C. Ministry of Environment, Lands and Parks 1995) summarizes a recommended process for managing biodiversity. As noted in the *Biodiversity Guidebook* (p. 1), the Ministry of Forests Forest Sciences Program developed companion documents summarizing the scientific literature about the ecological concepts contained in the guidebook. The companion documents include *Conservation Biology Principles for Forested Landscapes* (Voller and Harrison [editors] 1998) and the seven Research Branch extension notes. The extension notes also address client needs for awareness and understanding of concepts, principles, definitions, rationale, and assumptions related to landscape ecology (Daigle 1995; Shuley 1998).

Note: Current policy direction for biodiversity is represented by the more recently released *Landscape Unit Planning Guide* (B.C. Ministry of Forests and B.C. Ministry of Environment, Lands and Parks 1999).

The seven extension notes[1] published between November 1996 and June 1998 are:

- Management concepts for landscape ecology – EN-07
- Landscape ecology and natural disturbances: relationships to biodiversity – EN-10
- Spatial patterns and landscape ecology: implications for biodiversity – EN-14
- Landscape ecology and connectivity – EN-15
- Riparian areas: providing landscape habitat diversity – EN-17
- Seral stages across forested landscapes: relationships to biodiversity – EN-18
- Biodiversity and Interior habitats: the need to minimize edges – EN-21

Development and distribution of the extension notes:
- Seven extension notes were produced and distributed to a mailing list of more than 2200.

Twenty-two hundred copies of each extension note were distributed to forest managers of the Ministry of Forests and the Ministry of Environment, Lands and Parks, industry and consultant forest managers, non-governmental organizations, land and resource management planning and community round tables, and others.

1 Web site addresses for the seven extension notes are listed in the Appendix.

2 SUMMARY OF METHODS

Who was interviewed?
- Nineteen planning people were interviewed—12 at randomly selected forest districts and seven in the Strategic Planning Section in Victoria.

The interviews included both structured and open-ended questions; these were developed with the assistance of others in the Forest Sciences Program and in the Strategic Forest Planning Section of Forest Practices Branch. The survey was piloted with two district people. A few adjustments were made to clarify questions. Interviews were conducted with planners at 12 randomly selected districts. In addition, seven of eight headquarters planning specialists were interviewed. (One headquarters planner took part in developing the interview questions, thus this person was not interviewed.)

3 SUMMARY OF RESULTS

If responses from headquarters and district staff were similar, they were combined in the results. If district and headquarters answers differed, the survey results reflect the different perspectives. Some people interviewed received the extension notes as much as 18 months before the survey. In response to some questions, some interviewees said that they could not recall details about the extension notes.

3.1 Extension Note Distribution

Receiving the extension notes
- Just under half the planners indicated that they had received all seven extension notes. More than half had received only some.

District Comments: One-quarter of the district people said that they had received all of the extension notes. Two-thirds indicated that they had received some. One person had received none.
Headquarters Comments: More than half of the headquarters people had received all of the extension notes, a quarter had received some, and one person had not received any.
Implications for extension: Researchers need to be very rigorous in developing mailing lists (postal and e-mail) for their extension products. If you choose to use extension notes, use a variety of methods to prompt your audience to acquire and read your research findings (e.g., e-mail, Web sites, Web links, mail, and handouts at workshops, conferences, and field tours). Recognize that some people will move to new jobs and not leave the extension notes behind; to address this, consider distributing the extension notes at repeated intervals.

3.2 Extension Note Readership

Reading the extension notes
- Planners have large workloads that tend to preclude reading.

More than 60% of all interviewees had read some of the extension notes; a quarter had skimmed some. One person had read all the extension notes. Two people had read none. When asked why they had not read the extension notes, more than 40% indicated that heavy workloads reduce the time available for reading. More than a quarter thought that they had not received all copies in the series. Twenty percent noted that they had held a different job when the extension notes were distributed and that the topic of landscape ecology was not related to their role.
Implications for extension: Scientists may know that the information is important to a particular audience; however, that audience may not know it. People are very busy; important research messages must be compelling.

3.3 What Planners Liked Best About the Extension Notes

District comments: Fifty percent considered the extension notes appropriate, topical, and applicable to Landscape Unit planning. One-third liked the series as a thorough overview reference document.
Headquarters comments: More than 85% mentioned that the extension notes were visually appealing, with lots of headings, illustrations, sidebars, and white space, and that dense blocks of text were avoided. Forty percent liked the fact that the extension notes provided informative, up-to-date basic knowledge about landscape ecology and biodiversity, were written in easy-to-follow language suitable for both lay readers and practitioners, and concluded with good references. Nearly 30% liked the blend of text, examples, and illustrations and felt that the mix would address different types of learners and convey messages at an operations level.
Implications for extension: Overall, planners liked the content, format, and length of the extension notes. The seven notes were intentionally distributed over a period of many months. Not all people received or saved all seven extension notes. Therefore, the recommendation is to bind sets of the seven extension notes and send them to district and regional planners, Forest Ecosystem Specialists, and headquarters specialists.

Planners considered the extension notes:
- visually appealing, easy to follow, and about the right length
- informative, up-to-date summaries
- applicable to Landscape Unit planning

3.4 Length of the Extension Notes

District comments: Nearly 60% said the length of the extension notes was just right; just under 40% thought they were too long.
Headquarters comments: Six of seven respondents considered the extension note length just right. One person had no comment because he had not received the extension notes.
Implications for extension: Restrict the length of the extension note to fewer than eight pages (including references). For some topics, just two to four pages may suffice. Previous assessments (Daigle 1995; Gregory and Satterfield 1999) suggest that people prefer extension notes of fewer than four pages. If the topic is particularly complex, consider using a series of extension notes. Make it easy for the reader; use lots of illustrations, headings, sidebars, and white space.

3.5 What Planners Liked Least About the Extension Notes

District comments: Twenty-five percent said that the extension notes were too general and that they would prefer more "how-to" ideas and concrete examples (such as how to implement Old Growth Management Areas). Fifteen percent indicated that the notes were too technical for them to readily understand.
Headquarters comments: More than 40% noted that policies were evolving as the extension notes were developed and distributed. Thirty percent preferred a stronger link between forest policy and extension note content. Thirty percent mentioned that the extension notes and the *Conservation Biology for Forested Landscapes* book are comprehensive, while evolving forest policy addressed only a few items (e.g., old growth and wildlife trees). They felt that this has caused some difficulties and possible confusion. One person acknowledged not knowing how this might be avoided. Thirty percent indicated that they would like an introductory summary or abstract and more sidebars and illustrations; a similar number said that they disliked nothing about the extension notes.
Implications for extension: Extension notes have their limitations. These seven were developed beginning in 1995. Now that the *Landscape Unit Planning Guide* (B.C. Ministry of Forests and B.C. Ministry of

Concerns about the extension notes:
- Some headquarters policy-makers were concerned that forest policies were evolving as the extension notes were distributed.
- District planners would like more specific information about how to apply the concepts.

Environment, Lands and Parks 1999) has been released, planners need more detail about what to do (e.g., with respect to developing Old Growth Management Areas and Wildlife Tree Patches). The extension notes enhance people's awareness and knowledge about applying landscape ecology concepts, but extension notes are limited when it comes to offering practitioners the skills to do the work. Personal contacts (e.g., during workshops, field tours, and one-on-one consulting providing hands-on learning opportunities) usually help people develop skills.

3.6 How Planners Used the Information

Nearly 60% indicated that the notes contained good general information and concepts for their own use on plans and projects currently under way (e.g., Landscape Unit and Land and Resource Management plans, and development, operational, and other plans). Twenty percent used the extension note information to reinforce their own earlier learning. A similar number gave the extension notes to practitioners needing the information.

3.7 Passing the Extension Notes Along to Others

District comments: Sixty percent did not pass the extension notes along. Those who passed them along usually distributed them to planners, to small business, timber, silviculture and wildlife specialists, and to others.
Headquarters comments: Four of the seven interviewed passed the extension notes along, mostly to colleagues in the Strategic Planning Section.
Implications for extension: Nearly half the respondents did not pass the extension notes along to others. Therefore, explicitly encourage people to pass the information along. People may pass photocopies of your extension note along to others; consider that black and white illustrations usually photocopy more clearly than colour.

3.8 Suitability of the Extension Notes for Others Providing Input to Landscape Unit Plans

At districts, others providing input to Landscape Unit plans include Forest Ecosystem Specialists, planners, timber specialists, operations managers, silviculturists, regional wildlife biologists, and small business, recreation, and range specialists. Several others (internal and external to the Forest Service) were also cited.

At headquarters, others providing input to Landscape Unit planning include specialists in the Forest Practices Branch Strategic Planning Section, Ministry of Environment, Lands and Parks headquarters specialists, and industry contacts. Several others (internal and external to the Forest Service) were also mentioned.

Planners used the information for:
- plans and projects
- education

Seventy-five percent of all interviewees felt that these extension notes suit the needs of people who provide input to Landscape Unit planning. Interviewees felt this way because they consider that the extension notes provide background, current understandings, current language, and a basis for getting informed discussion under way. Some people interviewed cautioned that the extension notes are too technical for some audiences. When asked what extension methods might better suit others involved in Landscape Unit planning, interviewees suggested workshops and one-on-one contact with specialists.
Implications for extension: Encourage extension note recipients to circulate the extension note widely (to both in-house and external audiences). If other audiences need research information on a given topic, ensure that the language used is suited to their needs.

3.9 Objectives of the Extension Notes

People were asked to agree or disagree with three statements. The statements reflect three of the original objectives for publishing the extension note series.

These extension notes enhance:
- planners' awareness and understanding of landscape-scale management and ability to explain the concepts to others
- district planners' ability to make professional decisions

1. "These extension notes have enhanced your awareness and understanding of the basis for landscape-scale management." Twelve of 19 people agreed with this statement; two people disagreed. Three people were neutral and one did not know. One person did not consider the notes applicable to her work at the time.
2. "These extension notes have enhanced your ability to exercise professional judgement with landscape-scale management." District comments: Eight of 12 respondents agreed, three disagreed, and one person did not know. Headquarters comments: One person agreed, one person disagreed, two responses were neutral, and one person did not know. Two did not consider this statement applicable to their work.
3. "These extension notes have enhanced your ability to explain landscape-scale management to others." Ten of 19 respondents agreed, one person disagreed, and two were neutral. Four replied that they did not know. Two people said that this statement did not apply to their work.

Implications for extension: Extension notes can be an effective way of building awareness and understanding about a topic and enhancing people's confidence in making professional decisions. Some of those interviewed felt that the information in the extension notes helped them communicate the concepts to others.

3.10 Other Comments About this Extension Note Series

One-quarter of the interviewees asked for an update about emerging research related to landscape ecology. A similar number suggested binding all seven extension notes and distributing them to district, region, and headquarters people involved with landscape-level planning. Ten percent recommended distributing the notes with the Landscape Unit Planning Guide (at training sessions and a via a Web link). Two interviewees recommended that the extension note series be publicized in existing newsletters and via e-mail and Web links, and distributed as handouts when suitable opportunities arise (e.g., conferences and training sessions).
Implications for extension: Develop an updated extension note on topics related to landscape ecology. Install it on the Web, and publicize and distribute it widely.

3.11 How Planners Like to get Research Information About Landscape Ecology

People were asked about their preferences for receiving information related to landscape ecology in various formats (e.g., hard-copy publications, electronic methods, and personal contact). Some respondents provided multiple answers.
Printed publications: Nearly 60% indicated that printed extension notes are a preferred method. Fifteen percent preferred to gather information by reading books and field guides. Ten percent preferred reading newsletters and brochures.
Electronic methods: More than one-third said that they preferred locating information on the World Wide Web; some like to print what they find for take-home reading. More than 15% liked to receive information via e-mail.

Planners like to get information via:
- extension notes
- workshops, courses, and field tours, and one-on-one consultation
- the Web, e-mail, books, field guides, newsletters, and brochures

Personal contact: Nearly one-third preferred attending seminars, courses, workshops, and field tours. Twenty percent wanted one-on-one direct contact with researchers and specialists.
Implications for extension: At this time, planners prefer paper copies of extension notes to electronic versions. However, some planners like access to the notes via a Web site or e-mail. (In 1995, Daigle noted that practitioners seeking landscape-scale information preferred printed notes over electronic formats.) Planners also like personal contact: workshops, field tours, and one-on-one consultations.

3.12 What Other Topics Would be Suitable for Extension Notes?

Topics that planners would like to have more information about include:
- "how-to" guides for establishing Old Growth Management Areas and Wildlife Tree Patches
- species-specific information about habitat requirements
- spatial models and other tools
- Natural Disturbance Types 3 and 4

Respondents requested information about a wide range of topics. A few of the commonly mentioned requests are noted here.
District comments: Fifty percent of district interviewees asked for species-specific information about forest interior conditions, connectivity, ecosystem function at the landscape scale, and riparian management. Specific species mentioned included grizzly bear, marbled murrelet, mountain goat, northern goshawk, mountain caribou, and other listed species. Fifteen percent wanted spatial models and other tools; a similar number requested information about Natural Disturbance Types 3 and 4.
All interviewees: More than 30% of all interviewees requested more information about old growth and Old Growth Management Areas. More than 15% asked for information about wildlife trees and Wildlife Tree Patches.
Implications for extension: Publicize and distribute existing and emerging research regarding relationships among ecosystem conditions and listed species, spatial tools, disturbance types, old growth, and wildlife trees. If information about these topics is scattered or diffuse, synthesize it in extension notes or similar publications. Install these on the Web and publicize and distribute them widely. Seek opportunities to extend the information at workshops, conferences, and field tours, and during one-on-one consultations.

3.13 An Update of the 1995 Landscape Ecology Research Extension Needs Assessment

In 1995, a needs assessment identified several topics deemed relatively important by the 87 district people interviewed; those interviewed represented a wide range of disciplines. In the 1999 survey, planning practitioners and policy-makers were asked to identify the relative importance of the seven topics considered important by those interviewed in 1995. During the 1999 survey, if planners deemed the topic important, they were asked to provide details about their information needs.

3.13.1 Habitat requirements and listed species Nearly 95% considered this topic very important or important. One person was neutral on the topic. District people tended to want information about specific species. Headquarters people, while acknowledging the importance of the topic, sometimes indicated that listed species are not their area of concern.
Implications for extension: District planners indicated that understanding habitat requirements of several species is particularly important.

3.13.2 Ecology of whole watersheds: how ecosystems function at the landscape level Ninety percent of the interviewees considered this topic

very important or important. Others were neutral about the topic. People noted that this is the original intent of and the basis for Landscape Unit planning, biodiversity, and ecosystem management. District people wanted information about this topic so that they can have informed discussion. Headquarters people wanted to know the connection between ecosystem function and landscape planning.
Implications for extension: Planners at districts and headquarters wanted more research information about the ecology of entire watersheds to form the basis of informed discussion.

3.13.3 Conducting landscape analysis with "imperfect information" Nearly 90% of all respondents considered this topic very important or important. Three people were neutral about the topic while one person considered it unimportant. People wanted tools to help them deal with imperfect information. They indicated that the quality and format of inventory information is variable and sometimes out-of-date; these factors make analysis difficult. However, they pointed out that they need to understand and assess the information at hand and move forward with decisions.
Implications for extension: Respondents would like tools and approaches for working with imperfect information.

3.13.4 Riparian ecology and management District and headquarters concerns and comments about this topic varied. More than 90% of district people considered this topic very important or important; one person was neutral about the topic. Nearly 60% of headquarters people identified this as a very important or important topic; 40% were neutral. District comments reflected a broad range of information needs; those mentioned most were Best Management Practices interpretations and the impacts of riparian management on timber supply. Headquarters people noted an interest in the biodiversity, productivity, and human values focused in riparian areas and wanted information about how to balance tradeoffs among competing values.
Implications for extension: Planners rated riparian ecology and management as a relatively important concern and would like information about Best Management Practices, the impacts of management treatments on riparian areas, and approaches to balancing tradeoffs among competing values in these areas.

3.13.5 Using Geographic Information System (GIS) support tools for analyzing and designing landscapes More than 75% considered this topic very important or important, while 15% considered it unimportant. One person was neutral on the topic. District people indicated a need for understanding and using GIS tools, especially for analyzing seral stage distribution, but also for clarifying resource conflicts and evaluating potential solutions. Headquarters people wanted an overview of GIS capabilities.
Implications for extension: District people wanted appropriate GIS tools for their analyses. A synthesis about applicable GIS hardware and software, data requirements, and approaches would provide district people with a basic understanding of GIS capabilities and applicability to their Landscape Unit work.

3.13.6 **Wetland ecology and management** More than 30% of district people considered this a very important or important topic. Just one headquarters person rated this topic important. Ten percent of district people considered it unimportant while more than 40% of headquarters people considered it unimportant or very unimportant. Half of all people interviewed were neutral about this topic. District and headquarters people wanted to know more about the effects of forest management activities on the water table, water filtering, quality and storage, and the timing of flow.
Implications for extension: Planners showed relatively little interest in wetland ecology and management. If scientists deem this to be an important topic, begin building awareness and understanding among district and headquarters planners.

3.13.7 **Watershed restoration** Of all the people interviewed, more than 30% considered this topic very important or important. A similar number considered watershed restoration unimportant or very unimportant. More than one-third were neutral on this topic. Several respondents did not consider watershed restoration to be their work. People indicated that they wanted more information about the impacts and restrictions related to future timber harvest, rate of cut, and cumulative effects of management activities.
Implications for extension: For the planning audience, ensure that timber-harvesting impacts are addressed when watershed restoration research information is extended.

4 CONCLUSIONS

This extension note evaluation provides feedback about district and headquarters client likes and dislikes with respect to this extension method. It also gives scientists and specialists an indication of client extension method preferences and research topics deemed important to planners. Scientists can use this feedback from planners to more effectively design research extension efforts to meet the needs of this audience. Recommendations for scientists, specialists, and extension and training people are summarized in Table 1.

TABLE 1 *Summary recommendations for scientists, specialists, and extension and training people*

Extension note attribute	Implications for extension
Strengths	Can enhance readers' awareness and understanding about a topic. Portable: suitable for workshops, field tours, and take-home reading. Readers can review the note on their own to reinforce their learning. Extension notes on the Web can be accessed when needed. Easily photocopied. Can complement personal contact extension methods.
Text	Provide a summary at the beginning. Use easy-to-follow language and concrete examples to clarify abstract concepts. Literature cited and references can lead the reader to further learning.
Design/layout	Ensure that your message is appealing—especially the cover page. Break up the text with headings, illustrations, photographs, pull-quotes, side-bars, and white space. If you want readers to pass copies along to others, note that photographs usually do not photocopy as well as line drawings.
Length	Keep it short—if more than seven pages, consider two or more notes on the topic.
Distribution	Develop thorough mailing lists (postal and e-mail). Install the notes on the Web. Use e-mail, Internet, newsletters, personal contact, and workshops to prompt clients to access and read the notes. Explicitly encourage people to share the notes with others.
Other concerns about extension notes	Establish contact with affected policy-makers early; maintain contact throughout development and distribution of the note. If some clients also need skills to do their jobs (beyond awareness and understanding), complement the notes with "personal contact" extension methods (e.g., consultations, workshops, field tours).
Other responses from this survey of planners	Increase direct contact among scientists and planners (e.g., one-on-one consultations, workshops, and field trips). Synthesize research information about topics of concern to planners (e.g., guidance for establishing Old Growth Management Areas and Wildlife Tree Patches, habitat requirements of listed species, ecology of entire watersheds, dealing with "imperfect information," riparian ecology and management, and landscape analysis and design support tools).

5 **APPENDIX:** List of Web Site URLs for the Seven Extension Notes

Management Concepts for Landscape Ecology. (Part 1 of 7)
http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En07.htm
Landscape Ecology and Natural Disturbances: Relationships to Biodiversity. (Part 2 of 7) http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En10.htm
Spatial Patterns and Landscape Ecology: Implications for Biodiversity. (Part 3 of 7) http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En14.htm
Landscape Ecology and Connectivity. (Part 4 of 7)
http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En15.htm
Riparian Areas: Providing Landscape Habitat Diversity. (Part 5 of 7)
http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En17.htm
Biodiversity and Interior Habitats: The Need to Minimize Edge Effects. (Part 6 of 7) http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En21.htm
Seral Stages Across Forested Landscapes: Relationships to Biodiversity. (Part 7 of 7) http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En18.htm

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